to realize where one is needed most in the world is the best balance wheel for one's psychology.

As to religious or moral education of children; the day is coming when the broad-minded physician's aid will be more and more sought, for he more than anyone should know the whole man, as an evoluting organism with mental and spiritual forces at work in him which are closely related to the physical.

My last word is a plea that the family physician may continue to hold that intimate relation with the patient such as the "doctor of the old school" had, that he may also study and know his patient in all his attributes and that the specialist although he must confine his work to one organ may not be blinded to the greatest organ of all, the mind; and that all of us may see ever more and more clearly our relation to and our responsibility for the education of the children of this and future generations.

THE INDUCTION OF ANESTHESIA AND ETHYL CHLORIDE.

By CARLETON DEDERER, M. D., Los Angeles.

The induction of anesthesia is far more important than its subsequent continuance. One of the leading investigators in the field of anesthesia, George W. Crile,[1] M.D., of Cleveland, has not only laid great stress on the avoidance of fear before operations, but has shown chemically the effect of fear on the central nervous system. He says: "In rabbits subjected to the emotional stimulus of fear alone the brain-cells showed precisely the same change as those which resulted from physical injury, namely, an immediate stage of hyperchromatism and a later stage of chromatolysis; a disturbance of the nucleoplasmic relation and a final disintegration of many cells."

By using ethyl chloride for inducing anesthesia the patient is as free from brain trauma arising from emotional stimuli as by any other method per se. The two chief ways of eliminating fear before operations are by drugs and by suggestion. Drugs are not always necessary.

Suggestion should be of a constructive nature. The anesthetist should endeavor to fill the mind of the patient with positive conceptions of the successful outcome of the operation without actually referring to its immediate results. The psycological relationship between the anesthetist and the patient may be divided into three parts: 1, Salutation; 2, Foundation; 3, Construction.

1. The salutation consists chiefly of effecting an introduction of the anesthetist to the patient.

2. The foundation of the psychological relationship should be formed by remarks which take cognizance of present conditions, recognizing them, then finishing their consideration and throwing them out of mind by some remark such as, "I guess you will be glad when this is over." In this period the anesthetist should find out something in which the patient is interested.

3. The period of psycological construction accompanies the beginning of the administration of the anesthetic. To a certain extent the patient has to turn his attention to everything the anesthetist says. It is advisable for the anesthetist to make some brief remark about the method and object of the anesthesia such as, "This makes you sleep so that you will not feel anything." In rapid succession the anesthetist should change the subject to elaborations of ideas which he thinks can retain the attention of the patient. If the anesthetist constantly furnishes the patient with numerous subjects of thought he will succeed in eliminating much of the fear which is usually experienced by the patient. These subjects may be anything from a merry-go-round to baseball. As a final remark the anesthetist may say, "You will feel fine when you awake."

Ethyl chloride is dispensed in glass tubes. Its flow is controlled by a lever valve. The aperture should be large enough to give a stream which will not cause freezing.

Ethyl chloride is administered on the ordinary drop method inhaler covered by eight layers of light cotton gauze. It is well to hold the tube near the inhaler to prevent unnecessary cooling. One hand should be placed over the inhaler to aid volatilization. The ethyl chloride is squirted on the inhaler for periods of a few seconds alternating with equal periods of intermission. In the case of a four-year-old child, for instance, this procedure is continued for about one minute at which time the intermissions are occupied by the pouring on of ether. The administration of ethyl chloride is gradually diminished after one and one-half minutes but may be continued thus until after the stage of ether excitement is passed. As a rule the physical manifestations of ether excitement may be avoided by continuing the ethyl chloride for three minutes in a child of four years, for five minutes in a child of twelve years, for seven minutes in a woman and for nine minutes in a man. About ten grams of ethyl chloride is used for the induction of anesthesia in a child four years; about fifteen grams is used for a man.

The physiological action of ethyl chloride is similar to that of ether, but about five times as powerful. On this account it should be given always in an open inhaler instead of in a closed bag as originally introduced.

There are several physiological signs which have to be borne in mind. Generally by the end of the first minute a child, for instance, will be entirely unconscious of external stimuli. The respirations will then become more frequent and deeper. This is a signal not to push the administration of ethyl chloride but to start the ether.

The eyes of the patient should not be covered as the corneal reflex and pupillary reflex should be tested at least every half minute in the beginning of the period of unconsciousness. The corneal reflex and of course the pupillary reflex should not be paralyzed by ethyl chloride. The hands of the anesthetist should be clean for testing these. A safe and convenient way to test the corneal reflex is to make the upper eyelashes gently touch the cornea by turning them downward. If present the lid will twitch.

1 Crile, Geo. W.: Shock, The Journal A. M. A., Dec. 6, 1913, p. 2028.

Ethyl chloride has several advantages: it has a pleasant odor; it takes only a short time to induce anesthesia with it; the vapor does not irritate the respiratory passages. For these reasons and on account of its simplicity of administration it reduces to a minimum injurious emotional stimuli. Patients rarely struggle against ethyl chloride. This is an advantage especially in cases of abdominal or thoracic visceral injury.

After induction by this method the anesthetist may choose the best method for continuance of anesthesia.

HAIR-BALL TUMOR OF THE STOMACH.

By ADOLPH BERG, M. D., San Francisco.

The finding of a hair-ball tumor or trichobezoar in a human being is rare enough to be reported. The death rate is high and in the present case the true condition was overlooked by several physicians in this city and Denver, Colo., after a history of hair eating had been given to them by members of the family. Butterworth, in what is probably the best article written on the subject, hoped in the future to make a diagnosis before operation, but as I have not seen any more reports from him, he should at least be given the credit for suggesting the correct diagnosis.

Hair-ball tumors or bezoars are not uncommon among animals, as "hair-licks" are frequently found in cattle, but the practice of swallowing hair in great amounts in the human race is rare. Bezoars may be formed of hair or vegetable fibers or they may be composed of lime or magnesium phosphate as found in the wild goat of Persia. The latter are called the Oriental bezoars and have been used for their supposed medicinal value.

Mrs. X, age 24 yrs., has gained 20 pounds since her marriage one year ago. No children. No miscarriages. The past 10 years she has suffered from attacks of vomiting and abdominal pain lasting three to five weeks and accompanied by great emaciation. The last attack occurred two years ago. She has enjoyed fairly good health in the interims. She could usually feel a freely movable mass in different parts of the abdomen.

Menorrhagia and metrorrhagia were especially marked in the spells of vomiting.

The most frequent diagnoses have been appendicitis, one or both kidneys movable and uterine fibroids, and various operations were proposed.

Owing to the conflicting diagnoses operation was refused.

March 23rd, 1914. Patient is suffering severe intermittent pains in epigastrium and vomiting. She has not been feeling well and has vomited several times the past three weeks. Palpation of any part of the abdomen causes pain in epigastrium. Muscles of upper abdomen rigid and no mass can be outlined. Uterus small and freely movable. Fetid breath. Tongue coated. Temperature 99.5°. Pulse 120. Leukocytes 11,000. Urine negative. One grain opium suppositories gave only slight relief.

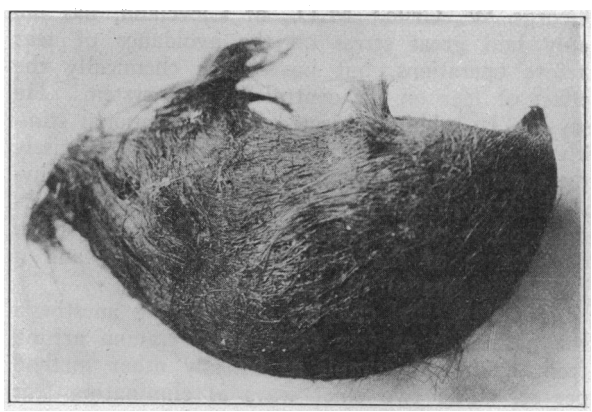
March 24th, 1914, 8 a. m. Severe pains and vomiting. No bowel movements from enemas. No relief from hot bath. 8 p. m. Fairly comfortable day but towards evening vomiting of much frothy mucous and severe pains. Patient very weak. Whole abdomen distended and rigid. Tumor not palpable. Temp. 101.5° F. Pulse 126. Refused to submit to an exploratory operation. Further questioning brought out the suggestion from the mother "if hair eating could in any way cause the pain?" A positive diagnosis of hair tumor was made and consent was given to operate.

Patient stated that a few years ago she passed, per rectum, a small hair-ball with long strands of hair attached. She has frequently found hair in the vomitus.

The suggestion that hair eating could have anything to do with her illness had been laughed at so much by most of her physicians that no mention was made of it before this time.

She was given a hypodermic of ¼ gr. morphine and when she reached the hospital the entire abdomen was relaxed. The lower border of a smooth, hard mass was felt lying transversely high and deep under the left costal arch.

Operation at St. Joseph's Hospital 11 p. m. Dr. Roy H. Morris assistant. Median epigastric incision. A tumor was found lying in or back of the stomach. The mass was with much difficulty dislodged as it was tightly wedged against the esophageal opening. The stomach was somewhat dilated and showed several striae similar to those of pregnancy. The intestines were distended and congested. A vertical incision from the greater to the lesser curvature of the stomach disclosed a very foul smelling yellowish fluid which was swabbed out together with some loose hair. Some difficulty was experienced in keeping the stomach walls against the gauze pads to prevent the fluid entering the peritoneal cavity in the manipulations of removing the hair mass. The mucous membrane was normal in appearance.



A search for intestinal hair-balls was unsuccessful and was greatly interfered with by the intestinal distension. The uterus was small and adnexa normal.

The stomach incision was closed in two layers and reinforced by a serous stitch, using a running plain catgut suture throughout. The abdominal wound was closed with catgut and a few deep silkworm sutures. The next morning the nurse reported finding fine hair particles in the glass of water used for washing the patient's teeth. Only a slight retching followed the operation. Beef tea was given on the second day and solid food on the fourth.

The abdominal wound suppurated in a few days probably due to the breaking down of fat and slight soiling of operative field by stomach contents. The pus was foul smelling like that of a colon infection.

Operative wound was healed and patient left the hospital on the 14th day. She has had several attacks of diarrhea and many small fine hairs have been found in the stools. (May 28th.) She states that the hair eating habit has been cured.

The hair mass is a perfect cast of the stomach with a saucer-like depression at the esophageal end. The mass was smooth but some hair was torn out by the tenaculum in the attempts to deliver it from the stomach. Most of the hair